

We claim:

1. A surgical instrument comprising a tube shaft having an effector rotatably and pivotably supported at one end and at the other end of the tube shaft an instrument handle is arranged for effecting a pivoting movement via a first gear train and a rotational movement of the effector via a second gear train, wherein a motion compensating member is integrated in the second gear train so that a drive of the second gear train caused by a pivoting movement of the effector is compensated when the first gear train is driven by the instrument handle to pivot the effector.

2. A surgical instrument according to claim 1, wherein the instrument handle comprises a first pivot operating mechanism operatively connected to the first gear train and comprises a rotation operating mechanism operatively connected to the second gear train, the first gear train and second gear train being operable independently of each other to respectively rotate the effector supported in an instrument head and to bend the instrument head together with the effector.

3. A surgical instrument according to claim 2, wherein the motion compensating member can be driven by the instrument handle, especially by means of the rotation operating mechanism and by means of the pivot operating mechanism simultaneously.

4. A surgical instrument according to claim 2, wherein the pivot operating mechanism includes a pivot bearing of the instrument handle at the tube shaft in which the motion compensating member is arranged preferably in the form of a long-face pinion so that it is rotatable by a pivoting movement of the instrument handle for driving the second gear train.

5. A surgical instrument according to claim 4, wherein the second gear train includes the motion compensating member which also is a part of the rotation operating mechanism of the

handle member that transmits a rotation operation to a rotary shaft supported in the tube shaft, and the rotary shaft engaging a transmission gear which is supported at a pivot axis of the effector at the tube shaft and meshes with an output gear attached at a longitudinal axis of the effector.

5 6. A surgical instrument according to claim 5, wherein the first gear train includes a crank element which forms a pivot bearing of the instrument handle and which is connected in a torque-proof manner to the instrument handle and engages a pushing tube supported in the tube shaft so as to transform a pivoting movement of the instrument handle into an axial movement of the pushing tube and which, at its end facing the instrument head, is operatively connected to the
10 instrument head via a joint mechanism so as to pivot the instrument head during an axial shifting about its pivot axis with the tube shaft.

7. A surgical instrument according to claim 6, wherein the crank element is in the form of a rotary shaft at one end of which a crank consisting of a groove-shaped cam path is formed, in which a driving pin attached to the pushing tube engages.

15 8. A surgical instrument according to claim 3, wherein the pivot operating mechanism includes a pivot bearing of the instrument handle at the tube shaft in which the motion compensating member is arranged preferably in the form of a long-face pinion so that it is rotatable by a pivoting movement of the instrument handle for driving the second gear train.

9. A surgical instrument according to claim 8, wherein the second gear train includes the
20 motion compensating member which also is a part of the rotation operating mechanism of the handle member that transmits a rotation operation to a rotary shaft supported in the tube shaft, and the rotary shaft engaging a transmission gear which is supported at a pivot axis of the

effector at the tube shaft and meshes with an output gear attached at a longitudinal axis of the effector.

10. A surgical instrument according to claim 9, wherein the first gear train includes a crank element which forms a pivot bearing of the instrument handle and which is connected in a torque-proof manner to the instrument handle and engages a pushing tube supported in the tube shaft so as to transform a pivoting movement of the instrument handle into an axial movement of the pushing tube and which, at its end facing the instrument head, is operatively connected to the instrument head via a joint mechanism so as to pivot the instrument head during an axial shifting about its pivot axis with the tube shaft.

11. A surgical instrument according to claim 10, wherein the crank element is in the form of a rotary shaft at one end of which a crank consisting of a groove-shaped cam path is formed, in which a driving pin attached to the pushing tube engages.

12. A surgical instrument according to claim 4, wherein the rotation operating mechanism consists of a manipulator supported at the instrument handle and preferably having the form of a rotary knob which is connected to an actuating shaft supported in the handle and operatively connected to the long-face pinion via a gear mechanism.

13. A surgical instrument according to claim 12, wherein the transmission ratio of the gear mechanism is defined such that when the instrument handle is pivoted about any angle α , which causes bending of the instrument head about an angle α , the rotary shaft is rotated about such an angle that the transmission gear supported on the pivot axis of the instrument head is rotated about the same angle α as the instrument head, whereby the relative position between the transmission gear and the output gear remains unchanged.

14. A surgical instrument according to claim 5, wherein the rotation operating mechanism consists of a manipulator supported at the instrument handle and preferably having the form of a rotary knob which is connected to an actuating shaft supported in the handle and operatively connected to the long-face pinion via a gear mechanism.